



TULANE ENVIRONMENTAL LAW CLINIC

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By U.S. mail and EMAIL: crocker.philip@epa.gov

157-049

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RE: Request for Disapproval of LDEQ's Amendments to the Water Quality Regulations regarding Dissolved Oxygen Criteria for Water Quality Subsegments in the Eastern Lower Mississippi River Alluvial Plains Ecoregion (LAC 33:IX.1123.Table 3) (WQ091)

Dear Mr. Crocker:

On behalf of the Gulf Restoration Network (GRN), Little Tchefuncte River Association (LTRA), Louisiana Environmental Action Network (LEAN), Sierra Club Delta Chapter, and the Louisiana Audubon Council (collectively "Citizen Groups"), thank you for holding the February 24, 2016, conference call. At that time, representatives of the Citizen Groups discussed our objections to the Louisiana Department of Environmental Quality (LDEQ)'s proposed regulatory changes which would drastically lower the minimum Dissolved Oxygen (DO) criteria on thirty-four rivers and streams east of the Mississippi River from Baton Rouge to Lake Maurepas and north of Lake Pontchartrain for nine months of the year (March-November). Citizen Groups request that EPA *disapprove* these criteria, which are hypoxic by EPA's own standards.¹

This letter summarizes the bases for Citizen Groups' objections, reattaches the documentation Citizen Groups presented contradicting the bases of LDEQ's proposal, and attaches additional documentation which shows that LDEQ's proposal is arbitrary. Some of the information Citizen Groups presented to EPA is information that LDEQ apparently did not present to EPA. Therefore, EPA did not previously consider this information during the state regulatory process. On our conference call, Citizen Groups also discussed significant objections they raised before LDEQ which LDEQ failed to respond to in its Response to Comments. Of utmost concern is the fact that Citizen Groups attached a 12-page sworn affidavit from expert Dr. JoAnn Burkholder in their comments to LDEQ, representing Dr.

¹ EPA has defined hypoxia as anything less than 3.0 mg/L. *See, e.g.,* <http://omp.gso.uri.edu/ompweb/doee/science/physical/choxy1.htm> ("Above 5 mg/l dissolved O2, most marine plants and animals have plenty of oxygen. When the dissolved oxygen is low, below 3 mg/l, the water is called hypoxic." The Committee on Environment and Natural Resources (2000) defined hypoxia as dissolved oxygen levels below 2 mg/l. *See* <http://toxics.usgs.gov/definitions/hypoxia.html>).

Burkholder's in-depth review of LDEQ's proposal and the documentation LDEQ made available to support it ("Burkholder Affidavit"). In it, Dr. Burkholder detailed dozens of aspects of LDEQ's proposal which do not represent sound science. Yet LDEQ did not respond to Dr. Burkholder's affidavit; indeed, LDEQ did not even acknowledge its existence. We ask EPA to review Dr. Burkholder's original affidavit. We also attach a supplemental affidavit by Dr. Burkholder, in which she emphasizes a number of the ways in which LDEQ's UAA is flawed. **Exhibit A** ("Burkholder Supplemental Affidavit").

Primary among the issues we discussed on our conference call was evidence that sound science does not support application of the 2.3 mg/L DO criterion for the waterbody subsegments on the Northshore of Lake Pontchartrain in the Eastern Lower Mississippi River Alluvial Plains Ecoregion ("Eastern LMRAP" or "Eastern Subcoregion"). The subsegments of concern are (moving generally from west to east): 040702, 040705, 040809, 040807, 040808, 040914, 040903, 040912, 040913, 040915, 040916, 040917, and 040907 ("Northshore subsegments" or "Northshore"). We have attached a chart summarizing pertinent aspect of these subsegments and how they are affected by LDEQ's proposed rule change. **Exhibit B.**²

As we discussed on the call, LDEQ's proposal is not supported by sound science. EPA requires that "criteria must be based on sound scientific rationale" 40 C.F.R. §131.11(a)(1). Several aspects of LDEQ's proposal lack sound scientific rationale.

I. EPA Must Disapprove LDEQ's Application of the Revised DO Criterion to the Northshore Subsegments.

A. None of the UAA Reference Sites Are On the Northshore.

First, none of the LDEQ's reference sites are on the Northshore. Thus, even if LDEQ's UAA presented sound science to support that the natural condition of the *reference* waterbodies is a 2.3 mg/L DO criterion for nine months of the year (which it does not), this would not support a conclusion that the natural condition of the *Northshore* waterbodies is 2.3 mg/L DO.

Citizen Groups have prepared a map showing the location of the reference sites within the subsegments subject to the criteria change. The map is attached as **Exhibit C**. It was created using LDEQ's subsegment revision map in its publicly-noticed "Explanation of Subsegment Revisions in Lower Mississippi River Alluvial Plains, Southern Plains Terrace and Flatwoods, and Coastal Deltaic Marshes Ecoregions." As is evident, none of LDEQ's reference sites are on the Northshore. The closest one is in subsegment 040604-001, and that one is at the farthest corner of the subsegment away from the Northshore.³

² The column labelled "Prior Boundaries Subject to Criteria Change" demonstrates that, had LDEQ not redrawn the boundaries of the affected ten subsegments, they would not be subject to the criteria change.

³ Additionally, 040604-001 is not subject to the criteria change.

The absence of any reference waterbodies within the Northshore represents a lack of evidence that the alleged “natural condition” of the reference waterbodies as 2.3 mg/L is also the natural condition of the Northshore waterbodies. LDEQ did not study any waterbody representative of the Northshore.

Further, ten of these Northshore subsegments were redrawn by LDEQ as part of this proposal. These are: 040705 (formerly 040702); 040809 and 040808 (formerly 040802); 040807 (formerly 040801); 040914 (formerly 040904); 040912 (formerly 040901); 040913 (formerly 040902); 040916 (formerly 040906); 040915 (formerly 040905); and 040917 (formerly 040908). Of these ten, eight moved from a different subcoregion to the Eastern LMRAP. These are: 040807, 040808, 040809, 040912, and 040915 (formerly 040802, part of the Southern Plains Terrace and Flatwoods; see LDEQ 2014; Ecoregions Delineation; Final, p. 16); and 040913, 040914, 040916, and 040917 (formerly Coastal Deltaic Marshes). The fact that most of these Northshore subsegments were the same ones which were also redrawn as part of this rulemaking – and were previously part of a different ecoregion not subject to the criteria change – only serves to make the absence of reference sites on the Northshore more problematic.

B. Many of the Northshore Subsegments, Plus Subsegment 040506, Contain Portions Outside of the Ecoregion.

Relatedly, *most of the Northshore subsegments contain portions* – in some cases, significant portions – *entirely outside the Eastern LMRAP*. Exhibit C also contains shading to demonstrate which of all of the Eastern LMRAP subsegments contain portions which lie outside of the Eastern LMRAP. Many of the Northshore subsegments are shaded. Of particular note, subsegments 040705 (Bedico Creek) and 040807 (the Tchefuncte River) contain significant portions outside of the ecoregion. Additionally, outside of what we have defined as the Northshore subsegments, subsegment 040506 includes a portion which lies outside of the ecoregion.

In all of these cases, the entire subsegment is subject to the criteria change even though portions lie outside of the ecoregion. If LDEQ’s entire rationale is that the ecoregion waterbodies are similar and therefore can all be subject to the criteria change based on a few reference sites in the ecoregion (and in the western LMRAP), then how can LDEQ justify subjecting subsegments which are partially outside of the ecoregion to the change? Absent any data for Northshore sites, LDEQ’s claim is not science-based.

C. Monitoring Data Shows that Northshore Waterbodies Are Achieving 5.0 mg/L of Dissolved Oxygen Year-Round.

As we stated in our comments to LDEQ but LDEQ did not respond to, LDEQ’s own monitoring data demonstrates that Northshore subsegments consistently meet the current DO

standard.⁴ Those data include subsegment 040506 (outside of what we have defined as the “Northshore subsegments”), for which the sampling point at the upriver side (station 116) reads that 238 out of 242 samples are above 5.0 mg/L. Though this station is at the very beginning of the subsegment, the monitoring station at the end (station 1106) show 9 out of 12 samples above 5.0 DO.

Before our February 24, 2016, phone call, Mr. Matt Rota of GRN sent EPA a summary of the monitoring data from some Northshore subsegments and the monitoring data itself. The summary is attached again here as **Exhibit D** and the monitoring data are attached as **Exhibit E**. Additionally, Mr. Rota has now prepared a map showing where all the monitoring stations are located, which is attached as **Exhibit F**.⁵ This monitoring data covers far more than the Northshore subsegments, providing even more evidence that the LDEQ’s entire UAA process is flawed.

LDEQ apparently did not review any monitoring data for any waterbodies other than the “reference” streams (and there are clear indications that the so-called “reference streams” selected by LDEQ are compromised by pollution that would depress the DO concentration).⁶ Data which shows that the Northshore waterbodies consistently meet the 5.0 mg/L or 4.0 mg/L DO standard contradicts LDEQ’s claim that their natural condition is 2.3 mg/L. Further, it proves that the reference streams (none of which are on the Northshore) are not representative of these Northshore subsegments.

Last, these monitoring data, proving the Northshore waterbodies meet the 5.0 mg/L DO criterion, also show that lowering the DO criterion for these subsegments violates antidegradation. EPA regulations at 40 C.F.R. § 131.12, entitled “Antidegradation Policy and Implementation Methods,” provide at paragraph (a)(2):

Where the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.

⁴ LDEQ wrote a response to this overall comment, but did not address the monitoring data, some of which we attached as Exhibits Q and R. See LDEQ Response to Comments Response #23. Indeed, it did not even republish the portion of the comment which referenced the monitoring data. Exhibit Q contained monitoring data from site 4011, which is well within subsegment 040807, and Exhibit R contained data from site 107, which is at the top of the same new subsegment (formerly 040801).

⁵ Exhibit F is much the same as Exhibit C, but with the subsegment numbers removed to make the location of the monitoring stations clearer.

⁶ Further, as indicated in our state comments, LDEQ’s reference stream monitoring method was flawed in several significant ways.

The fact that the Northshore waters are achieving and have been achieving the 5.0 mg/L standard means that at least 5.0 mg/L during the critical period from March through November is their natural condition, and that this is the standard necessary to protect the Fish and Wildlife Use. However, assuming LDEQ could show that the fish in the Northshore waterbodies can survive and thrive in 2.3 mg/L (which it has not attempted to do and which is not supported by a large body of science), the monitoring data show, at a minimum, that the quality of these Northshore waters “exceeds levels necessary to support the propagation of fish . . . and wildlife.” This being the case, “that quality [5.0 mg/L] shall be maintained and protected” unless the State shows that “allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.” *Id.*⁷ LDEQ has not performed any antidegradation analysis, much less met the rigorous showing required.

Further, for those waterbodies which are Outstanding Natural Resource Waters, which many of the Northshore subsegments *are*, EPA regulations provide that their water quality “shall be maintained and protected.” *Id.* at para. (a)(3).

LDEQ’s response to comments regarding antidegradation does not, in fact, respond to the issue and instead reflects a circular argument. LDEQ states that the fact that the Tchefuncte River currently meets 5.0 mg/L DO year-round does not implicate antidegradation because “the department will not approve a discharge or activity if it will cause degradation of an [ONRW].” LDEQ RTC at #12. *See also* LDEQ RTC #13 (“Antidegradation policies and procedures . . . protect ONRWs against degradation.”). However, by lowering the DO criterion to 2.3 mg/L, LDEQ *is* “allowing lower water quality.” That is precisely the effect of LDEQ’s rule change. LDEQ argues that this lower water quality is the natural condition, but, even were this correct, it is beside the point as far as antidegradation is concerned. LDEQ is allowing lower water quality in the thirty-four streams impacted by this rule change, and it has not conducted an antidegradation analysis. LDEQ defines degradation as “a lowering of water quality.” La. Admin. Code tit. 33, pt. IX, sec. 1105.

D. Evidence Demonstrates That the Northshore Waterbodies – and the Tchefuncte in Particular – Are Not Like the Other Waterbodies in the Eastern LMRAP or the Western LMRAP.

On this issue, again, LDEQ’s own data contradicts its proposal. Figure 2 of LDEQ’s UAA shows that the Northshore waterbodies contain significant forested and urban land uses. This same figure reflects that only one of LDEQ’s reference sites – 3949 – contains significant forested land and not a single reference site is in an urban area. Thus, again, the data from the reference sites is not representative of the Northshore subsegments.⁸

⁷ That would not be all the LDEQ would be required to do, as paragraph (a)(2)(ii) contains additional requirements and, of course, existing uses must be maintained.

⁸ Further, because a number of the Northshore subsegments contain urban areas and none of the reference sites do, to the extent that some of the reaches of the Northshore subsegments reflect low DO, this may well be reflective of anthropogenic causes and not natural conditions.

Further, the majority of the waterbodies sampled by LDEQ exist wholly within the ecoregion, while the Northshore waterbodies begin one or more ecoregions north of the LMRAP ecoregion and only pass through the LMRAP ecoregion in their last three to six miles before they enter Lake Pontchartrain. This would indicate these rivers are different than the sample sites. The rivers which reflect this issue include: 1) the Tchefuncte River, which begins near the Mississippi state line in the Terraced Uplands (Southern Plains) and passes through the Southern Plains Terraced Flatwoods before entering the LMRAP ecoregion approximately five miles from its end at Lake Pontchartrain; 2) the Tangipahoa River, which starts in southern Mississippi and passes through the Terraced Uplands and Southern Plains Terraced Flatwoods before entering the eastern LMRAP near the end of its course; and 3) Bayou Lacombe, which begins in the Southern Plains Terraced Flatwoods and exists for only about four miles in the LMRAP ecoregion. Most other Northshore rivers begin in the Southern Plains Terraced Flatwoods and exist mostly outside the LMRAP ecoregion.

As we discussed on the conference call, LDEQ's unsupported proposal to create a new subsegment subject to the criteria change – 040807, the Tchefuncte River from US Hwy 190 to Bogue Falaya River – by breaking it out of 040801 is worthy of particular emphasis. This section is a popular recreational waterbody well used by swimmers, fishermen, and boaters. At least half of the new subsegment has the same continuous year-round flow and active current conditions as the portion upriver from US 190 – basically the same hydrology. The DO standard of 5.0 mg/L during the critical period is consistently attained and not subject to seasonal lows. Additionally, LDEQ's maps show a large portion of the Tchefuncte subsegment 040807 to be *outside* the ecoregion and, therefore, inappropriate for inclusion in this proposal.

E. LDEQ's Newly Published Draft Integrated Report for 2016 Shows That a Number of the Northshore Waterbodies Are Meeting 5.0 mg/L.

On March 2, 2016, LDEQ published its proposed 2016 Integrated Report for notice and comment. In it, LDEQ lists a number of the Northshore subsegments as not being impaired for Fish and Wildlife Propagation. *See* <http://www.deq.louisiana.gov/portal/Portals/0/planning/305b/2016/2016%20IR%20Public%20Notice%20Version%20FINAL%202-25-16.pdf>. This proves that these waterbodies are achieving 5.0 mg/L of DO, because LDEQ was almost certainly using the 5.0 mg/L DO criterion to create this list.⁹ EPA should request and review all monitoring data LDEQ used to list these waterbodies as meeting 5.0 mg/L.

Additionally, for those Northshore waterbodies that are not meeting 5.0 mg/L, given that LDEQ has no reference waterbodies anywhere near there and the fact that many of the Northshore waterbodies have significant point and nonpoint dischargers, their failure to

⁹ None of the publicly noticed material for the Integrated Report clearly states what DO criterion LDEQ applied, but the fact that the list does not contain the newly drawn subsegments and the fact that the eastern LMRAP DO change was not finalized until January 2016 strongly suggests that LDEQ used 5.0 mg/L (or 4.0 mg/L for estuarine waters).

consistently meet 5.0 mg/L cannot be attributed to natural conditions. As one example, the Phase I Lower Tchefuncte TDML for Biological Oxygen-Demanding Substances (BOD) identifies over 120 individual dischargers of BOD with permits into the Lower Tchefuncte and its tributaries within the ecoregion.¹⁰ This does not count individual, non-permitted discharges such as home septic systems. Many of the Northshore TDMLs reflect the same type of dischargers into the majority of Northshore waterbodies.

II. EPA Must Disapprove LDEQ's Application of the Revised DO Criterion to Estuarine and Tidally Influenced Waters.

As discussed by Dr. JoAnn Burkholder in her affidavit and on the conference call, LDEQ's application of its revised 2.3 mg/L of DO to not only freshwaters but also estuarine and tidally influenced waters is not supported by sound science. *See* Burkholder Affidavit at 11-12. ***Further, the record on this issue contains numerous LDEQ contradictions and inconsistencies which reflect the arbitrary nature of this proposal.*** As Dr. Burkholder explained and EPA no doubt recognized, estuarine and tidally influenced waters differ in significant ways from freshwater.¹¹ EPA itself noted this problem during the state regulatory process. EPA noted the issue in November 2013, when it commented that LDEQ should clarify that the new standard does not apply to estuarine and tidally influenced waters, as "[t]he reference sites selected for this component of the study did not include estuarine waters, and it would be inappropriate to adopt proposed DO criteria for estuarine segments without analysis of estuarine references." **Exhibit G.** LDEQ's official response, on December 10, 2014, to EPA's comments was to insist on the application of its proposed criterion to estuarine and tidally influenced waters, stating that the UAA "does cover tidally-influenced reference waters and some areas with estuarine characteristics." **Exhibit H.**

However, nearly a year earlier, on November 7, 2013, LDEQ admitted that "the sites sampled in the eastern LMRAP, that were used to prove/disprove similarity with the western LMRAP, did not include any estuarine water bodies." **Exhibit I.** Therefore, LDEQ stated that "***we are not proposing to revise the criteria for the estuarine water bodies in the eastern LMRAP.***" *Id.* (emphasis added).

LDEQ, of course, has proposed its new criterion apply to estuarine waters, and its Final Rule published in the Louisiana Register on December 20, 2015, applies the criterion to estuarine waters. *See* Final Rule at Table 3.

EPA, however, is on record as questioning the validity of LDEQ's application of 2.3 mg/L to estuarine and tidally influenced waters. After LDEQ's December 10, 2014, response on the issue, EPA attempted to ascertain whether certain of LDEQ's reference sites were

¹⁰ This TDML is for subsegments 040802 and 040803, which are not subject to the new proposed criteria. However, subsegments 040809 and 040808 were part of 040802 until LDEQ's redesignation which it proposes for EPA approval.

¹¹ Dr. Burkholder explained: "Estuarine segments are well known to differ markedly from freshwater segments in water-column stratification, DO depth profiles, and other characteristics that influence DO dynamics (see, for example, Day 1989 vs. Wetzel 2001)." Burkholder Affidavit at 7.

estuarine, questioning LDEQ about reference sites 0264 (Pass Manchac) and 3496 (Middle Bayou). **Exhibit J.**¹² EPA noted a bigger problem, however, commenting that “[i]f there was a greater prevalence of tidally-influenced reference streams in the eastern LMRAP compared to the western LMRAP (which seems to be the case),” then the appropriateness of LDEQ’s reliance on the western LMRAP and western LMRAP reference sites to revise eastern LMRAP criteria is questionable. Exhibit J at 2.

No further correspondence on this issue appears of record, but Dr. Burkholder affirms what EPA noted and LDEQ admitted: it is inappropriate to apply criteria developed for freshwater and based on freshwater reference sites to estuarine and tidally-influenced streams. *See* Burkholder Affidavit at 11-12. It is particularly notable that LDEQ’s redrawing of many of the Northshore subsegments to include them in the eastern LMRAP, in addition to the issues noted above, was also impacted by LDEQ’s invalid application of freshwater-based criteria to estuarine and tidally influenced waters. LDEQ noted that “[r]evisions to the northern boundary of the eastern LMRAP Ecoregion were heavily based on tidal influence and biological communities associated with estuarine and tidally-influenced environments.” Exhibit H. If many of the eastern LMRAP streams are tidally influenced, as stated by LDEQ and EPA, how can they be thought to be similar to many of the UAA Reference Sites that are not tidally influenced?

CONCLUSION

On the February 24, 2016, conference call, LDEQ repeatedly referred to an August 25, 2015, letter from EPA to LDEQ in which EPA indicated that it was supportive of the proposed revisions. The letter, however, preceded the official EPA period of review, which did not begin until January 7, 2016, when LDEQ submitted the packet to EPA. Further, the August 25, 2015, letter was sent before the LDEQ comment period closed *and before Citizen Groups had submitted their comments*. Citizen Groups requested, and LDEQ granted, a 30-day extension of the comment period. Thus, Citizen Groups timely submitted their comments to LDEQ (and copied EPA) on September 4, 2016, *after* EPA’s August letter. LDEQ’s apparent efforts to lock EPA in to a preliminary statement it sent before the public comment period closed, before it received the packet with all the public comments and LDEQ’s responses thereto, and before EPA’s official review period, fails. The comments which EPA did not have when it sent the August letter includes Dr. Burkholder’s affidavit, which ***LDEQ failed to provide a single response to***. Indeed, LDEQ did not even mention it in the Response to Comments. It is unclear if LDEQ even read it.

For the reasons articulated in Citizen Groups’ comments to the state, in their conference call, and in this letter, LDEQ’s proposed criteria changes are unlawful and unsupported by science. Accordingly, EPA should disapprove the proposed criteria for the eastern Lower Mississippi River Alluvial Plains. At a minimum, EPA must disapprove the criteria change for the Northshore waterbodies and the new subsegment boundaries.

¹² EPA’s question on whether sites 0264 and 3496 were estuarine appears to already have been answered by LDEQ in the negative a year earlier. *See* Exhibit I.

Respectfully submitted by:

s/ Lisa Jordan

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